Managing Risk

Your Financial Partner @ Work

Risk Defined

- **The probability of an undesirable event occurring and the impact of that event on system development or maintenance activities**
  - **Risks are precursors to problems**
  - **Risks are generally quantified from a baseline in cost, schedule or performance dimensions**
  - **Industry studies indicate software development-intensive acquisitions risk failure in one or more of four ways**
    - » **1. The product delivered is not the product the customer expected**
    - » **2. The product does not meet performance requirements (operationally or logistically)**
    - » **3. Actual costs are higher than budgeted costs**
    - » **4. Delivery of the product was too late to meet the operational need**

Sources of Risk

- **Political Risk**
  - Change in customer and/or organizational priorities
  - Change in resource availability
  - Influence from outside agencies
    - » Congress
    - » Office of Management and Budget
    - » Audit Agencies
    - » Headquarters
    - » Other stakeholders

Sources of Risk

- **Organizational**
  - **Staffing**
    - » **Too few**
    - » **Too Late**
    - » **Wrong or insufficient skills**
    - » **Too many managers not enough workers**
  - **Management**
    - » **Poorly defined roles and responsibilities**
    - » **No charter**
    - » **Unclear, conflicting, or constantly changing direction**
  - **Facilities**
    - » **Development**
    - » **Testing**

Sources of Risk

- **Cost**
  - **Inaccurate/under-defined scope, requirements and documentation**
  - **Incomplete end-to-end SLC costing**
  - **Buy-ins by contractors**
  - **Pushing or exceeding state of the art technology**
  - **Inadequate controls/reviews for cost management**

Sources of Risk

- **Schedule**
  - **Underestimating resources required to meet timeline milestones**
  - **Misunderstanding relationships among tasks and components**
  - **Underestimating task duration**
  - **Too much time versus event orientation/scheduling**
  - **Lack of tracking mechanisms, metrics, and feedback**

Sources of Risk

- **Technical**
  - **Poor translation of requirements from functional to technical**
    - » **Inaccurate   /   Incomplete   /   Vague**
  - **Complexity**
  - **Pushing state of the art technology**
  - **Not coupling design with requirements and revalidating often**
  - **Floating/unstable baselines - no/poor configuration management**
  - **Failure to incrementally test as product is being developed**
  - **Betting on the come - technological breakthroughs**
  - **Obsolescence of software languages or hardware**

Sources of Risk

- **Performance**

  - **Inaccurate requirements**

  - **Inconsistent requirements**

  - **Vague requirements**

  - **Requirements miscommunication**

  - **Lack of system engineering process**

  - **Inadequate controls/reviews**

  - **Incomplete testing**

  - **OT&E measures verses DT&E measures**

Risk Mitigation

- **Establish a process that enables the program to identify, analyze, plan, track, and continuously evaluate and control risk throughout system life cycle**

- **Frequently assess:**
  - **What can go wrong (I.e.,what the risks are),**
  - **Which risks are most probable; would have most impact**
  - **Implementing strategies and take action to minimize risks (risk mitigation)**

- **Risk mitigation allows you to maximize program activities while minimizing the impact of future uncertainty to provide a greater chance to succeed by taking early, planned corrective actions**

- **Risk management fits the "Pay me now or pay me MUCH MORE later" proposition**

Risk Management is a Continuous Process

Risk Assessment & Identification

- What are the risks?
- What area is it in?
- Whose Risk is it?

Risk Analysis

- What is its cause?
- What is its severity?
- What is its likelihood?
- How can it be measured?

Risk Mitigation

- Take action to make risk acceptable.
- Take action to avoid risk.
- Take action to control.
- Set limits for risk tolerance.
- Transfer risk.
- Buy risk insurance.

Risk Planning

- Put a risk mitigation plan together
- Identify potential impacts
- Assign responsibilities
- Establish metric, measures, feedback

Risk Tracking & Control

- Measure and capture risk metrics
- Schedule reviews
- Direct actions with assigned timelines
- Revise the risk plan as necessary

Risk Communication

- Document risk sources
- Inform people about risks
- Tell people what risk is whose
- Have people participate in planning mitigation
- Provide risk metrics and status